

## State Stem Cell Agency Launches On-line High School Curriculum, a Key Tool for Training Today's Youth for Tomorrow's High-Growth Jobs

Posted: February 25, 2010

San Francisco, Calif., February 25 – The California Institute for Regenerative Medicine, the state stem cell agency, has launched an on-line stem cell education portal. The extensive set of course materials and activity resources will help high school and other educators prepare the youth of California to join the fast-growing biotech economy and help that sector find the workers its leaders say are already in short supply.

"The launch of this new education portal brings us a step closer to ensuring California has a workforce with the educational and technical training needed to fill positions in the stem cell and biotech industries of the state," said Senator Gloria Romero, Chair of the Senate Education Committee. "We know that a solid education today is our best chance for economic recovery in California tomorrow. By providing teachers and students with the resources they need to be prepared for the jobs and industries this state has and will have, we can secure a prosperous economic future built on California's ingenuity and innovation."

Senate President pro Tem Darrell Steinberg, along with Romero sponsored the Senate version of a stem cell education bill last year. That legislation was carried in the Assembly by Assemblyman Tom Torlakson, a member of the Assembly Education Committee and a longtime state leader on stem cell research and its needs in our educational system.

"As a former science teacher, I know programs like this can spark creativity, enthusiasm and learning in our children," said Torlakson. "Furthermore, they can keep California on the cutting edge of tomorrow's technology and provide us with new avenues of economic growth."

Governor Arnold Schwarzenegger signed the bill in October. The bill requires the California Department of Education (CDE) to collaborate with the Stem Cell Agency and the biotech industry to include stem cell science and biotechnology in existing career development programs. It also requires the CDE to post on its web site and provide to teachers and school districts the model curriculum on stem cell science being launched by CIRM today.

The portal can be found [here](#).

"Prop 71, through CIRM, has made California a fertile ground for stem cell science to take hold and flourish, but we will only realize the full potential of this burgeoning field by developing an educated workforce of the future," said Senator Art Torres (Retired), co-vice chair of the Agency's Governing Board. "Our first billion dollars in grants awarded is estimated to be on a trajectory to create tens of thousands of job-years of employment; we need to make sure we have the Californians trained to fill those positions."

CIRM's new "Stem Cell EDU Portal" provides a robust source of educational materials with a wide variety of teaching formats and levels of presentation. Four multi-component modules form the heart of the new curriculum. Each is pegged to a portion of the state mandated science curriculum guidelines, which should help teachers substitute this stem cell curriculum for items they are already teaching without expanding the total volume of what needs to be taught.

- Unit 1: Embryonic stem cells, in-vitro fertilization, and pre-implantation genetic diagnosis
- Unit 2: Adult stem cells, homeostasis, and regenerative medicine
- Unit 3: The microenvironment, its role in cell fate decisions, and cancer
- Unit 4: The immune system and the hematopoietic stem cell lineage tree

Each can be taught in a day or fill a week if all the accompanying activities are used. The first two units are designed for basic biology classes and the last two are more appropriate for advanced placement classes. At least one more module is in development.

The site also provides introductory lectures that can be downloaded for basic biology classes, biotech oriented classes, AP Biology, or chemistry classes. Each version offers multi-media opportunities to engage the students with video and other activities and is available for MAC or PC.

The portal offers the opportunity to match-make teachers' classes with stem cell scientists from neighboring universities or companies to give this introductory lesson or just come and talk to their classes. This will expose students deciding on their career paths to the latest scientific developments and support teachers in delivering the curriculum. The site also contains links to additional teaching resources offered by other reputable organizations and calls on scientists and teachers to submit teaching material for CIRM to consider hosting.

"The next generation of innovation will come from the young minds we stimulate today – an important role for CIRM," said CIRM President Alan Trounson.

As CIRM creates jobs today it is helping train the workers of tomorrow, while having only positive impacts on the state's beleaguered general fund. Prop 71 directed that the bonds funding the agency be forward capitalized so the agency paid its own interest costs for the first five years. CIRM's ongoing research initiatives will generate more than enough tax revenue to cover the cost of interest on CIRM's bond financing in the next few years and should have a net benefit to the general fund this year.

**About CIRM:** CIRM was established in November 2004 with the passage of Proposition 71, the California Stem Cell Research and Cures Act. The statewide ballot measure, which provided \$3 billion in funding for stem cell research at California universities and research institutions, was overwhelmingly approved by voters, and called for the establishment of an entity to make grants and provide loans for stem cell research, research facilities, and other vital research opportunities. To date, the CIRM governing board has approved 328 research and facility grants totaling more than \$1.02 billion, making CIRM the largest source of funding for human embryonic stem cell research in the world. Estimates suggest that these grants already awarded will generate tens of thousands of job-years of employment in the state.

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